

LEVELS OF PCDDs, PCDFs, Co-PCBs AND PCBs IN HUMAN BREAST MILK
AT DIFFERENT TIMES OF LACTATION

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Polychlorinated dibenzo-p-dioxins (PCDDs), polychlorinated dibenzofurans (PCDFs) and coplanar-polychlorinated biphenyls(Co-PCB) have been detected in environmental and biological samples, including human adipose tissue, human breast milk, fish. We were able to obtain periodically human breast milk of primiparas living in Japan, and thus we attempted to develop a simple and convenient analytical method of PCDDs, PCDFs, Co-PCBs and PCBs (Fig. 1). Using a method thus developed, we measured periodically the concentrations of PCDDs, PCDFs, Co-PCBs and PCBs in human breast milk fat and analyzed changes in their concentrations during the lactation period.

The concentrations of PCDDs, PCDFs, Co-PCBs and PCBs in human breast milk fat changed with the lapse of time after delivery. That is, the concentrations of PCDDs, PCDFs, Co-PCBs and PCBs were 1059 ppt (4 weeks) - 363 ppt (26 weeks), 91 ppt - 54ppt, 636 ppt - 324 ppt and 460 ppb - 239 ppb, respectively.

When the concentrations of PCDDs, PCDFs and Co-PCBs were calculated in terms of the toxicity equivalent of 2,3,7,8-TCDD (TEQ), their TEQ was 29 ppt - 21ppt, 18 ppt - 12 ppt and 50 ppt - 32 ppt (Table 1).

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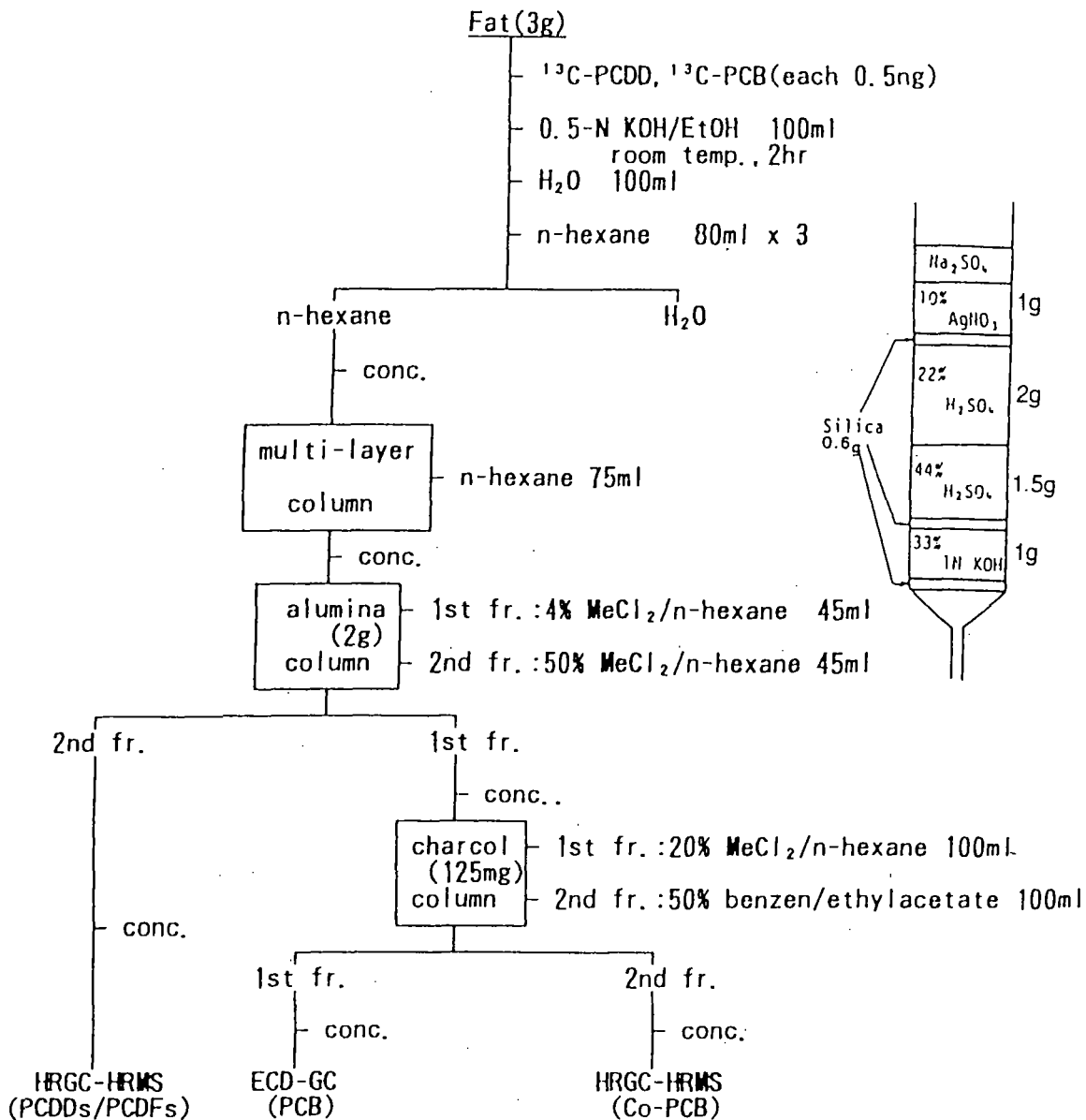


Fig. 1 Purification method for PCDDs, PCDFs and Co-PCBs

Table 1 TEQ levels of PCDDs, PCDFs and Co-PCBs in breast milk from one mother at different times of lactation

Time after delivery (week)	TEQ (ppt)			
	PCDDs	PCDFs	Co-PCBs	Total
6	29	18	50	97
8	24	17	44	85
20	21	15	37	73
21	22	13	41	76
22	20	15	37	72
23	21	13	37	71
25	22	14	38	74
26	21	12	32	65